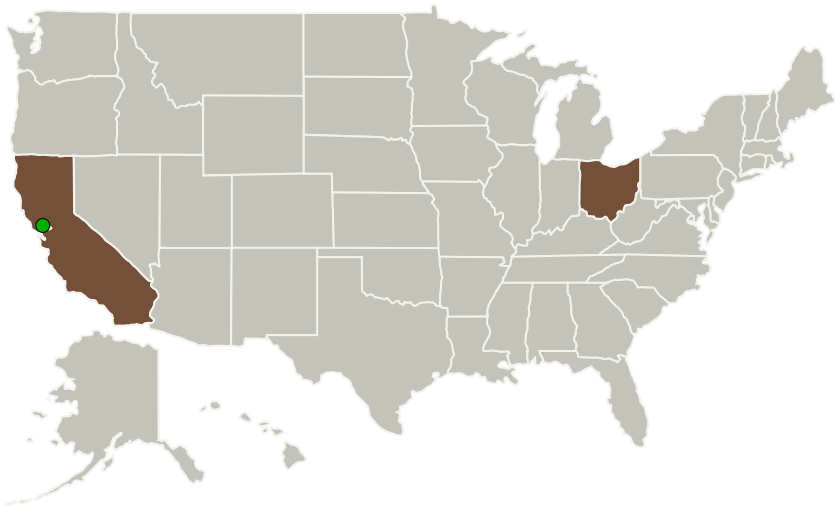
Braided Composite Technologies for Rotorcraft Structures, Phase I

Completed Technology Project (2012 - 2012)

Project Introduction

The proposed program will focus on the development of a new generation of advanced technology for rotorcraft transmission systems. This program will evaluate the viability of integrating gears with composite shafts. The aim of this work is to reduce overall weight and improve vibration characteristics. Two concepts have been identified and will be further researched. The first design includes co-molding a bearing race to a carbon fiber reinforced composite shaft. The second design integrates the composite shaft and metallic gear in a way that allows shaft misalignment in the power transmission system. These attachments will simplify gear attachment and have the potential to reduce weight by integrating parts without the need for secondary fasteners. This development work will allow for widespread application in both military and civil rotorcraft systems.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
A&P Technology	Lead Organization	Industry	Cincinnati, Ohio
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

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Primary U.S. Work Locations	
California	Ohio

Project Transitions

February 2012: Project Start

August 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140320)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

A&P Technology

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

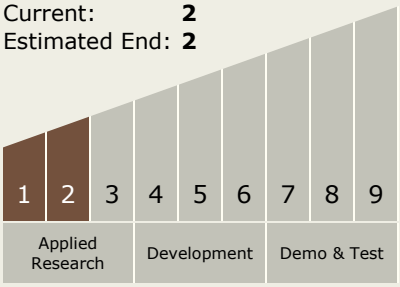
Carlos Torrez

Principal Investigator:

Nathan Jessie

Technology Maturity (TRL)

Start: **1**
Current: **2**
Estimated End: **2**



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Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.2 Structures
    - TX12.2.4 Tests, Tools and Methods

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System